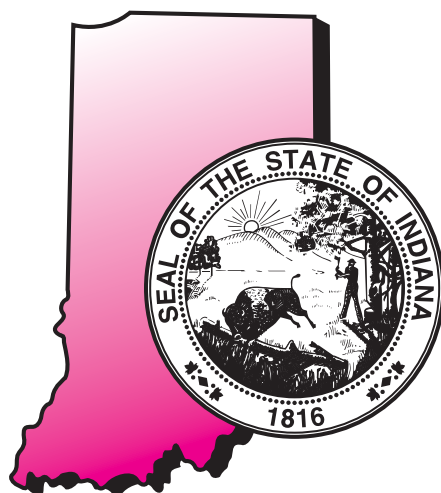


***ISTEP+* Fall 2008**

Indiana Statewide Testing for Educational Progress

English/Language Arts • Mathematics • Science
Grade 7



Indiana Department of Education

Web Version

Use only a Number 2 pencil to respond to the questions in this book. Responses written in pen CANNOT be scored.



Whenever you see this icon, you will be doing a writing activity. Your writing will not be scored on your personal opinions or choices, but will be scored objectively on

- how clearly you address the prompt
- how well you organize your ideas
- how effectively you express yourself
- how consistently you use correct paragraphing, grammar, spelling, and punctuation

Be sure to use the rules of Standard English. Standard English is the English commonly used in formal writing. It does not include slang or jargon.

Acknowledgments: CTB is indebted to the following for permission to use material in this book.

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Test 3: English/Language Arts

A Perfect Day at School

Read the writing prompt below and complete the writing activity.

Your principal and teachers have been trying to redesign the school day to help all students be more successful in school. Every student will still be expected to come to school every day, but school could start and end at different times or different classes could even be offered.

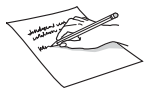
Write an essay to submit to your principal in which you describe what the perfect school day might look like to you.

Be sure to include

- when you might arrive at school
- when you might leave school
- what classes you might take
- what other opportunities you might have during the day
- an introduction, a body, and a conclusion to your essay

Go On





Use the Pre-Writing/Planning space or additional paper for notes, lists, webs, outlines, or anything else that might help you plan your writing. Then write your essay on the lined pages. Be sure to write neatly. Using the Editing Checklist on page 9, check your writing for correct paragraphing, grammar, spelling, punctuation, and the use of Standard English.

NOTE: Only your writing on the lined pages in this book will be scored.

Pre-Writing/Planning

Go On



Pre-Writing/Planning

Go On



Essay

Title: _____

Go On



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DO NOT WRITE HERE DO NOT WRITE HERE DO NOT WRITE HERE DO NOT WRITE HERE

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Test 3

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Go On



This image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

Editing Checklist

- 1** Check your capitalization and punctuation.
- 2** Spell all words correctly.
- 3** Check for sentence fragments or run-on sentences.
- 4** Keep verb tense consistent.
- 5** Make sure subject and verb agree.
- 6** Use words according to the rules of Standard English.
- 7** Remember to paragraph correctly.

STOP! _ _ _ STOP! _ _ _ STOP! _ _ _ STOP! _ _ _ STOP!



Test 4: English/Language Arts

For Test 4, you will read an article and a story. You will answer questions based on each passage. Then you will write an essay on a related topic.

Have you ever wondered what the first computers were like? First you will read “Dr. Grace Hopper: Dare and Do,” an article about a Navy officer’s work with one of the first computers in the United States.

Now read “Dr. Grace Hopper: Dare and Do” and do Numbers 1 through 7. You may look back at the article as often as you like.

Go On



[illegible]

Lieutenant Grace Hopper codes problems onto punch tape for feeding into an early computer.



She took apart her bedroom clock. Then she couldn't figure out how to put it together again. She took apart another clock—then another and another. Finally, all seven alarm clocks in the house were in pieces.

Grace's parents encouraged her interests. They gave her building kits, and they let her go sailing and have other adventures.

Grace had wanted to become an engineer. But in the 1920s, there were no opportunities for women in engineering. So she studied math and physics instead. In 1930, she married Vincent Hopper. Four years later, she earned a doctor's degree in mathematics.

Dr. Grace Hopper joined the Navy during World War II. There, she was introduced to her lifelong love: computers.

She worked with the Mark I, one of the first computers built in America. It was the size of a semi-truck and contained 750,000 parts and 500 miles of electrical wires. It performed only three additions per second—extremely slow by today’s standards. Any modern personal computer can do millions per second. But the Mark I could do in one day what it would take a person six months to complete.





- 1** This article can be classified as a form of biography because it
- ☐ uses dialogue
 - ☐ takes place many years ago
 - ☐ provides an account of one person's life
 - ☐ gives one person's opinion about an important issue
- 2** You want to compare the speed of early computers with that of today's computers. In which section of the article will you find this information?
- ☐ The Mark I
 - ☐ Computer Language
 - ☐ A Futuristic Vision
 - ☐ The Computer Bug
- 3** The article suggests that Dr. Hopper was curious throughout her life. Give ONE example from the article that shows how she was curious as a child. Give ANOTHER example of how she shows curiosity as an adult.

How Grace shows curiosity as a child	How Grace shows curiosity as an adult



4 Which of these statements BEST supports the author's opinion that Grace Hopper had a "fighting spirit"?

- ☐ She helped make "computer bug" an everyday term.
- ☐ She learned about computers after she joined the Navy.
- ☐ She worked with the Mark I even though it was as large as a semi-truck.
- ☐ She created a computer language even though people made fun of her idea.

5 In her work with computers, Dr. Hopper had to solve problems. Identify ONE problem that Dr. Hopper encountered and explain how she solved that problem.

Problem: _____

Solution: _____

Go On



6 Study this outline for the first section of the article.

I. Introduction

A. Childhood Interests

1) _____

2) Building Kits

B. Education

C. Marriage

D. United States Navy

Which of these BEST completes the outline?

- ☐ Alarm Clocks
- ☐ Physics and Math
- ☐ Lack of Opportunity
- ☐ Computer Programming



- 7 Dr. Hopper gave this advice to young people: “Ships are safe in port, but that’s not what ships are built for.”

In your own words, explain what Dr. Hopper meant by this statement.

Provide ONE example from the article that shows how Dr. Hopper followed her own advice.

Go On



English/Language Arts

You will now read “Fireflies,” a story about a special evening that two young boys enjoy with their grandfather. After you read the story, you will answer some questions. Then you will write an essay on a related topic.

Now read “Fireflies” and do Numbers 8 through 13. You may look back at the story as often as you like.



Fireflies

by Jim Heynen



The boys realized later that only their grandfather knew how dark the night was going to get when he invited them for a walk down to the slough.¹ “I think I will have a surprise when we get there,” he said. That was enough to keep them from teasing him or each other while they walked.

The sun was setting behind them, making the pasture and cornfields a deeper green than ever. When they came to the lowland where the slough grass followed the bend of the creek through the fields, they felt the first little patches of cool air flutter out of the grass and touch their faces. Then came even cooler wisps of air as small baskets of mist formed around them. You’d feel it on your forehead first, just below the hairline, and then the ears.

Their grandfather walked and talked in his quiet way that kept them from complaining about wet shoes, or gnats, or the cooling air.

“Now, wait,” he said at the edge of the slough.

Already the world was darkening around them. The sky looked light, but when you looked down at the grass, you could tell that down there darkness had already happened. Their grandfather drew an empty fruit jar from the bag he carried.

“I’m going to show you a little trick,” he said. “This fruit jar will be our flashlight on the way back.”

It would be easy for their grandfather to make them look foolish if they asked a foolish question, so they waited, watching quietly for the secret behind the trick. Whatever it might be.

¹**slough:** a stagnant swamp, marsh, or pond, especially as part of an inlet or backwater

Go On



The first hint was a sudden green glow in the dark grass, then a brighter, clearer light as the firefly rose.

“Wait,” he said again. “Just wait.” And as they did, the lights of the slough came on, one after another, until the air was swimming with tiny lights. Fireflies everywhere, rising from the moist grass like bubbles in a bowl of darkness, swirling as they rose, sometimes like bubbles going out in mid-flight and rising again from a new place.

“Now,” he said, “just tease them into the jar, gently, like this.” And they did, touching the bits of light into the fruit jar, dozens and dozens of fireflies, until there were inches of them. Their grandfather put the lid on loosely and held the jar toward one boy’s face, which lit up with the glow of firefly light.

He held the jar toward the ground, as if this were the only way he would know where to step, and started back, holding the light next to his leg for the boys to follow.

To the boys, it felt as if they were on a secret mission, and they didn’t talk until they were nearing the lights of the farmhouse.

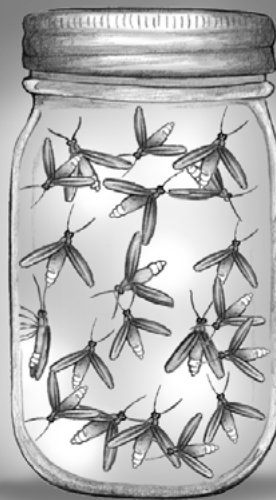
“Wait till they see this,” said one of the boys. “Just wait till they see this!”

But the grandfather stopped. “We’re going to have too much light once we get back,” he said. “And who knows who might be getting lost out here.”

He took off the lid.

“But no one will believe us if we don’t show them the firefly flashlight,” said one of the boys.

“That’s part of the fun,” said the grandfather, and set them all free.



8 Which of these statements best describes how the boys MOST LIKELY feel about their grandfather?

- ☐ The boys love their grandfather because he is playful and silly.
- ☐ The boys think their grandfather plays too many tricks on them.
- ☐ The boys admire their grandfather because he is knowledgeable and wise.
- ☐ The boys enjoy their grandfather but wish he would spend more time with them.

9 This story is an example of

- ☐ a folktale
- ☐ a mystery
- ☐ realistic fiction
- ☐ science fiction

10 How does the setting of “Fireflies” change from the beginning of the story to the end?

How does this change of setting affect the outcome of the story?

Go On



11 Read this sentence from the story.

And as they did, the lights of the slough came on, one after another, until the air was swimming with tiny lights.

The author uses the word *swimming* to describe the

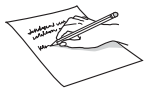
- ☐ coolness of the air
- ☐ dampness of the air
- ☐ brightness of the fireflies
- ☐ movement of the fireflies

12 How does the grandfather's "quiet way" affect the boys as they walk to the slough?

- ☐ It keeps the boys from teasing and complaining.
- ☐ It makes the boys noisier and more talkative than usual.
- ☐ It makes the boys feel free to run through the wet grass.
- ☐ It keeps the boys from getting answers to their questions.



13



Imagine that the boys' grandfather wants to tell an old friend about his two grandsons. How would he describe and explain his relationship with the boys?

Write an essay from the point of view of the grandfather in "Fireflies." In your essay, imagine that the grandfather is telling a friend about his relationship with his grandsons. **Be sure to include at least TWO different details from the story in your response.**

You may use the space below to plan your writing. Using the Editing Checklist on page 24, check your writing for correct paragraphing, grammar, spelling, punctuation, and the use of Standard English. **Remember, your essay should be well organized and have an introduction, a body, and a conclusion.**

NOTE: Only your writing on the lined pages in this book will be scored.

Pre-Writing/Planning

Go On



Essay

DO NOT WRITE HERE ↑ DO NOT WRITE HERE ↑ DO NOT WRITE HERE ↑ DO NOT WRITE HERE ↑

DO NOT WRITE HERE ↓

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Go On



Use only a Number 2 pencil to respond to the questions in this book. Responses written in pen CANNOT be scored.



If you see this symbol, you may use your reference sheet to help solve the problem.



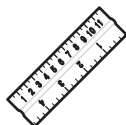
If you see this symbol, you may NOT use a calculator to solve problems in the test.



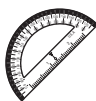
If you see this symbol, you may use a calculator to solve problems in the test.



This symbol appears at the beginning of the sections that contain gridded-response problems.



If you see this symbol, use your ruler as a straightedge or to solve the problem.



If you see this symbol, use your protractor to solve the problem.

Test 7: Mathematics



Since you may receive partial credit for many of the problems, it is important to show ALL work in the spaces provided in this book. When you see the words **Show All Work**, be sure to

- show all the steps needed to solve the problem
- make your handwriting clear and easy to read
- write the answer on the answer line

1

The density (d) of a substance can be found by using the formula $d = \frac{m}{v}$, where m represents the mass of the substance and v represents the volume of the substance.

What is the density, in grams per cubic centimeter, of a substance with a mass of 120 grams and a volume of 32 cubic centimeters?

Show All Work

Answer _____ grams per cubic centimeter

Go On



Use the numbers in the list to make an ordered stem-and-leaf plot.

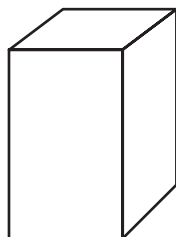
[illegible]

KEY

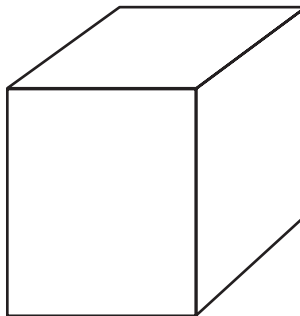
$$1|9 = 19$$


3

Cassie makes two wax candles. Both candles are rectangular prisms, as shown in the diagram below.



First



Second

The first candle measures 4 centimeters wide, 6 centimeters long, and 10 centimeters high.

The second candle measures 8 centimeters wide, 10 centimeters long, and 12 centimeters high.

On the line below, write the ratio of the volume, in cubic centimeters, of the first candle to the volume, in cubic centimeters, of the second candle. Write your ratio in LOWEST TERMS.

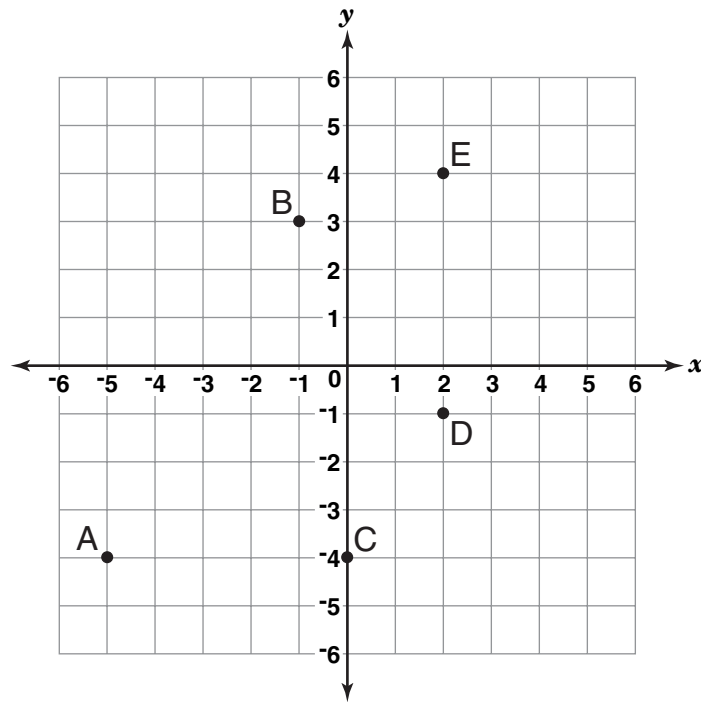
Show All Work

Ratio _____

Go On



- 4 Write the coordinates of each point graphed on the coordinate plane below.



A (_____, _____)

B (_____, _____)

C (_____, _____)

D (_____, _____)

E (_____, _____)

5



Larry weighs 120 pounds and rides his bike at an average speed of 12 miles per hour. Jason weighs 90 pounds and rides his bike at an average speed of 9 miles per hour. Larry and Jason start at the same place and ride their bikes in opposite directions.

On the lines below, identify the information that is NOT needed to determine how far apart Larry and Jason will be after riding their bikes for 10 minutes.

How far apart, in miles, will Larry and Jason be after riding their bikes for 10 minutes?

Show All Work

Answer _____ miles

Go On



- 6 Two angles in a triangle measure $82\frac{1}{4}^\circ$ and $26\frac{1}{2}^\circ$.

What is the measure of the third angle in this triangle?

Show All Work

Answer _____[°]



- 7 Jenna and Ryan are painting the ceiling of a room. Ryan has painted $\frac{3}{8}$ of the ceiling and Jenna has painted $\frac{5}{12}$ of the ceiling.

What fraction of the ceiling have they painted in all?

Show All Work

Answer _____ of the ceiling

STOP! STOP! STOP! STOP! STOP!



Test 8: Mathematics



Since you may receive partial credit for many of the problems, it is important to show ALL work in the spaces provided in this book. When you see the words **Show All Work**, be sure to

- show all the steps needed to solve the problem
- make your handwriting clear and easy to read
- write the answer on the answer line

1

At Farnworth's Restaurant, customers who want seafood can choose from 4 different types of fish cooked 3 different ways. The types of fish are cod, halibut, salmon, and trout. The fish can be baked, fried, or grilled.

In the box below, show all the different seafood options a customer can order.

Go On

- 2** Stacie and her little brother Conner went to a game store. Stacie spent \$54.60 on games for her brother Conner. She spent 25% more on games for herself than she did on games for her brother.

What was the total combined cost of the games Stacie bought for herself and for her brother Conner?

Show All Work

Answer \$ _____

- 3** John used 48 apples to bake 8 pies. He used an equal number of apples for each pie.

On the line below, write an equation that can be used to find the number (n) of apples in each pie.

Equation _____

Now solve the equation you wrote. Write your answer on the line below.

Answer _____ apples

Go On



4

Jessica needs new carpet in her room. The carpet she wants costs \$2.95 per square yard.



If Jessica needs to buy a 4-yard by 5-yard piece of carpet, what will be the cost of the carpet after paying a 6% sales tax?

Show All Work

Answer \$ _____



- 5 Ms. Talbot gave a math quiz to 10 students. Their scores are shown below.

12 19 13 13 14 12 15 19 19 14

What is the mode of the quiz scores?

Answer _____

The mean quiz score is 15.

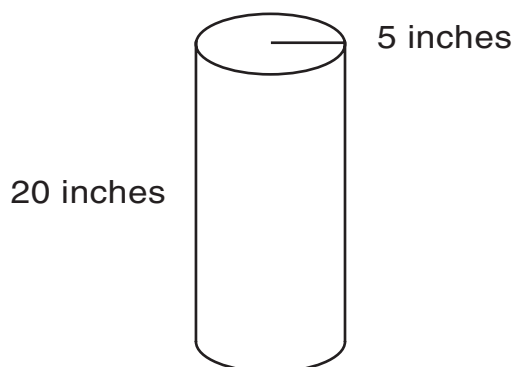
Is the mean or the mode a better reflection of the typical quiz score?
On the lines below, explain how you know.

Go On



6

Martin wants to put his collection of baseball hats into a cylindrical container that has a radius of 5 inches and a height of 20 inches.



What is the VOLUME, in cubic inches, of the container?

Show All Work

Answer _____ cubic inches



7 Look at the numbers below.

$$-3.75$$

$$-\frac{1}{4}$$

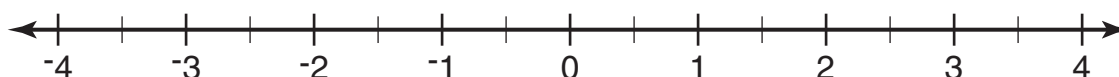
$$2\frac{1}{2}$$

$$3.2$$

$$-1\frac{3}{4}$$

$$1$$

Plot the point for each of these numbers on the number line below. Write the number above each point plotted.

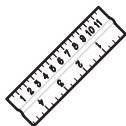


ATTENTION! Please do not leave your punchouts in this book.



STOP! STOP! STOP! STOP! STOP!

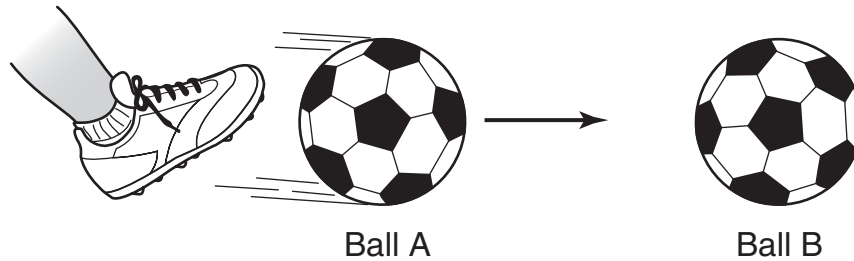
Use only a Number 2 pencil to respond to the questions in this book. Responses written in pen CANNOT be scored.



If you see this symbol, use your ruler as a straightedge or to solve the problem.

Test 11: Science

- 1 A soccer team is kicking around soccer balls before practice. The diagram below shows how a student kicked Ball A toward Ball B, which was not moving.



Describe what will happen to the **SPEED** of each soccer ball when Ball A hits Ball B.

If Ball A had been kicked with a greater force, then how would this have changed what happens to the speed of Ball B?

Go On



- 2 The table below shows data for four of the planets in our solar system.

Data for Four Planets

	Venus	Earth	Mars	Jupiter
Distance from Sun (in millions of kilometers)	108	149	228	778
Time of Rotation (in Earth days)	243	1	1	0.4
Time of Revolution (in Earth days)	225	365	687	4,330
Average Surface Temperature (in degrees Celsius)	453	8	-43	-153

Which planet has the LONGEST time of rotation?

Which planet has the COLDEST surface temperature?

Describe how the distance from the sun affects the time of revolution for the planets in the table.

- 3** Ground-level ozone is harmful to breathe. During hot sunny days, chemicals released from the use of fossil fuels can cause ground-level ozone to form.

Describe TWO different ways a person could use less fossil fuels during hot sunny days.

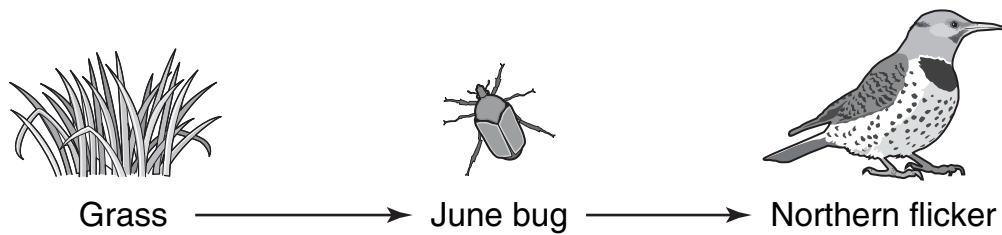
- 1) _____

- 2) _____

Go On



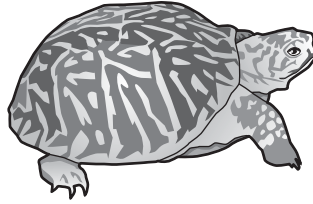
4 The diagram below shows a food chain.



If the grass population increased, how would the June bug population change?

If the grass population died during a drought, how would the Northern flicker population change?

- 5 The picture below shows an Eastern box turtle, which lives in the forests and meadows of Indiana.



Eastern box turtle

Describe ONE characteristic of an Eastern box turtle that helps it to survive in Indiana.

Explain how this characteristic helps the Eastern box turtle to survive in Indiana.

Describe an environment where the Eastern box turtle would NOT survive.

Explain why the Eastern box turtle would NOT survive in this environment.

Go On



- 6 A scientist is studying the effect of a new medicine on a certain disease. After collecting the data, he decides to use only some of the data so he can analyze the results faster.

Explain TWO different reasons why the scientist's conclusions might be INCORRECT because only some of the data is analyzed.

- 1) _____

- 2) _____



7

A population of foxes lives in a forest. Although the foxes have many similar features, some of the individual foxes have features that give them an advantage over the other foxes. For example, some foxes have bigger ears than other foxes. These bigger ears allow them to hear their prey from farther away compared to other foxes.

Give ONE other example of a physical feature that would make one fox better able to hunt animals, compared to the other foxes.

Give ONE example of a physical feature that would make one fox better able to stay warm, compared to the other foxes, if the climate became much colder.

Go On



- 8 Ruby and Simon each tested two different brands of baseballs to determine which brand went farther when hit with a bat.

On Tuesday, Ruby went to a field and hit each baseball off a tee. She measured the distance from the tee to where each ball stopped. Ruby determined that Brand A could be hit farther than Brand B.

On Wednesday, Simon went to a different field and followed the same steps as Ruby. However, Simon determined that Brand B could be hit farther than Brand A.

Give TWO different reasons that could explain why their results were different from each other.

- 1) _____

- 2) _____

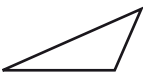

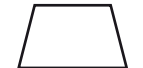


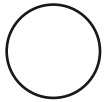

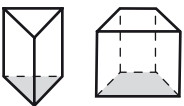



ATTENTION! Please do not leave your punchouts in this book.



STOP! - - - STOP! - - - STOP! - - - STOP! - - - STOP! - - -

ISTEP+ Grades 7 and 8 Mathematics Reference Sheet

Shape		Formulas for Area (A) and Circumference (C)	
Triangle		$A = \frac{1}{2}bh = \frac{1}{2} \times \text{base} \times \text{height}$	
Rectangle		$A = lw = \text{length} \times \text{width}$	
Trapezoid		$A = \frac{1}{2}(b_1 + b_2)h = \frac{1}{2} \times \text{sum of bases} \times \text{height}$	
Parallelogram		$A = bh = \text{base} \times \text{height}$	
Square		$A = s^2 = \text{side} \times \text{side}$	
Circle		$A = \pi r^2 = \pi \times \text{radius} \times \text{radius}$ $C = 2\pi r = 2 \times \pi \times \text{radius}$ $\pi \approx 3.14 \text{ or } \frac{22}{7}$	
Figure		Formulas for Volume (V) and Surface Area (SA)	
Rectangular Prism		$V = lwh = \text{length} \times \text{width} \times \text{height}$ $SA = 2lw + 2hw + 2lh$ $= 2(\text{length} \times \text{width}) + 2(\text{height} \times \text{width}) + 2(\text{length} \times \text{height})$	
General Prisms		$V = Bh = \text{area of base} \times \text{height}$ $SA = \text{sum of the areas of the faces}$	
Cylinder		$V = \pi r^2 h = \pi \times \text{radius} \times \text{radius} \times \text{height}$ $SA = 2\pi r^2 + 2\pi rh$ $= 2 \times \pi \times \text{radius} \times \text{radius} + 2 \times \pi \times \text{radius} \times \text{height}$ $\pi \approx 3.14 \text{ or } \frac{22}{7}$	

Conversions

1 yard = 3 feet = 36 inches
 1 mile = 1,760 yards = 5,280 feet
 1 acre = 43,560 square feet
 1 hour = 60 minutes
 1 minute = 60 seconds

1 cup = 8 fluid ounces
 1 pint = 2 cups
 1 quart = 2 pints
 1 gallon = 4 quarts

1 liter = 1000 milliliters = 1000 cubic centimeters
 1 meter = 100 centimeters = 1000 millimeters
 1 kilometer = 1000 meters
 1 gram = 1000 milligrams
 1 kilogram = 1000 grams

1 pound = 16 ounces
 1 ton = 2,000 pounds

Equation of a Line

Slope-Intercept Form:

$$y = mx + b$$

where m = slope and b = y-intercept

Slope of a Line

Let (x_1, y_1) and (x_2, y_2) be two points in the plane.

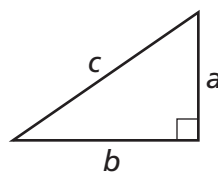
$$\text{slope} = \frac{\text{change in } y}{\text{change in } x} = \frac{y_2 - y_1}{x_2 - x_1} \text{ where } x_2 \neq x_1$$

Distance Formula

$$d = rt$$

distance = rate \times time

Pythagorean Theorem



$$a^2 + b^2 = c^2$$

Temperature Formulas

$$^{\circ}\text{C} = \frac{5}{9}(\text{F} - 32)$$

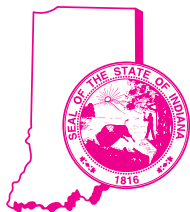
$$^{\circ}\text{Celsius} = \frac{5}{9} \times (^{\circ}\text{Fahrenheit} - 32)$$

$$^{\circ}\text{F} = \frac{9}{5}\text{C} + 32$$

$$^{\circ}\text{Fahrenheit} = \frac{9}{5} \times ^{\circ}\text{Celsius} + 32$$

Response Book for Grade 7

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